DAGS Capital District
Energy Savings Performance Contracting
Phase 1 Buildings
(Job No. 52-10-0599)

Department of Accounting &
General Services, State of Hawaii

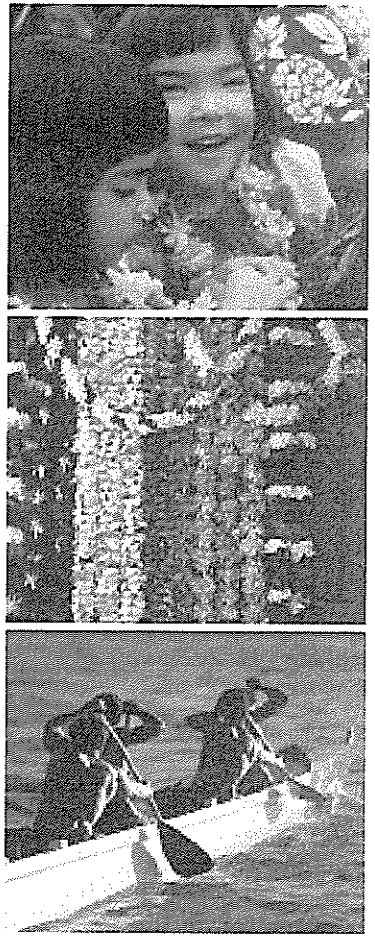
NORESCO LLC

"Case Study Presentation" December 18, 2009

Customer Driven Energy Solutions

Governor's Energy Initiatives

- Reduce Hawaii's dependency on imported fossil fuels and associated greenhouse gas emissions
- Use Energy Savings Performance Contracting as the delivery method for timely implementation of conservation and efficiency measures
- Governor signs agreement with the U.S. Department of Energy on Hawaii's Clean Energy Initiative
- 70% Clean Energy by 2030 (40% renewable, 30% efficiency)



What is Energy Savings Performance Contracting (ESPC)?

- A method of paying for facility improvements using energy and operation savings.
- Typically, improvements (i.e. energy conservation measures or ECMs) are financed through municipal lease financing.
- Utility consumption and maintenance savings are guaranteed by the energy services company (ESCO).
- Authorized by HRS 36-41 and HRS 196.
- Two major phases in a ESPC Project –
  - Construction of ECMs (12-24 months)
  - Performance Guarantee Period (twenty years)

Definition

"Energy-Savings Performance Contract" means a contract that provides for the performance of services for the design, acquisition, financing, installation, testing, operation, and where appropriate, maintenance and repair, of an identified energy or water conservation measure or series of measures at one or more locations."

Presidential Executive Order 13123, June 3, 1999

ESPC - Hawai‘i Enabling Law

§196-21 Financing mechanisms. (a) Agencies shall maximize their use of available alternative financing contracting mechanisms, including energy-savings contracts, when life-cycle cost-effective, to reduce energy use and cost in their facilities and operations. Energy-savings contracts shall include:

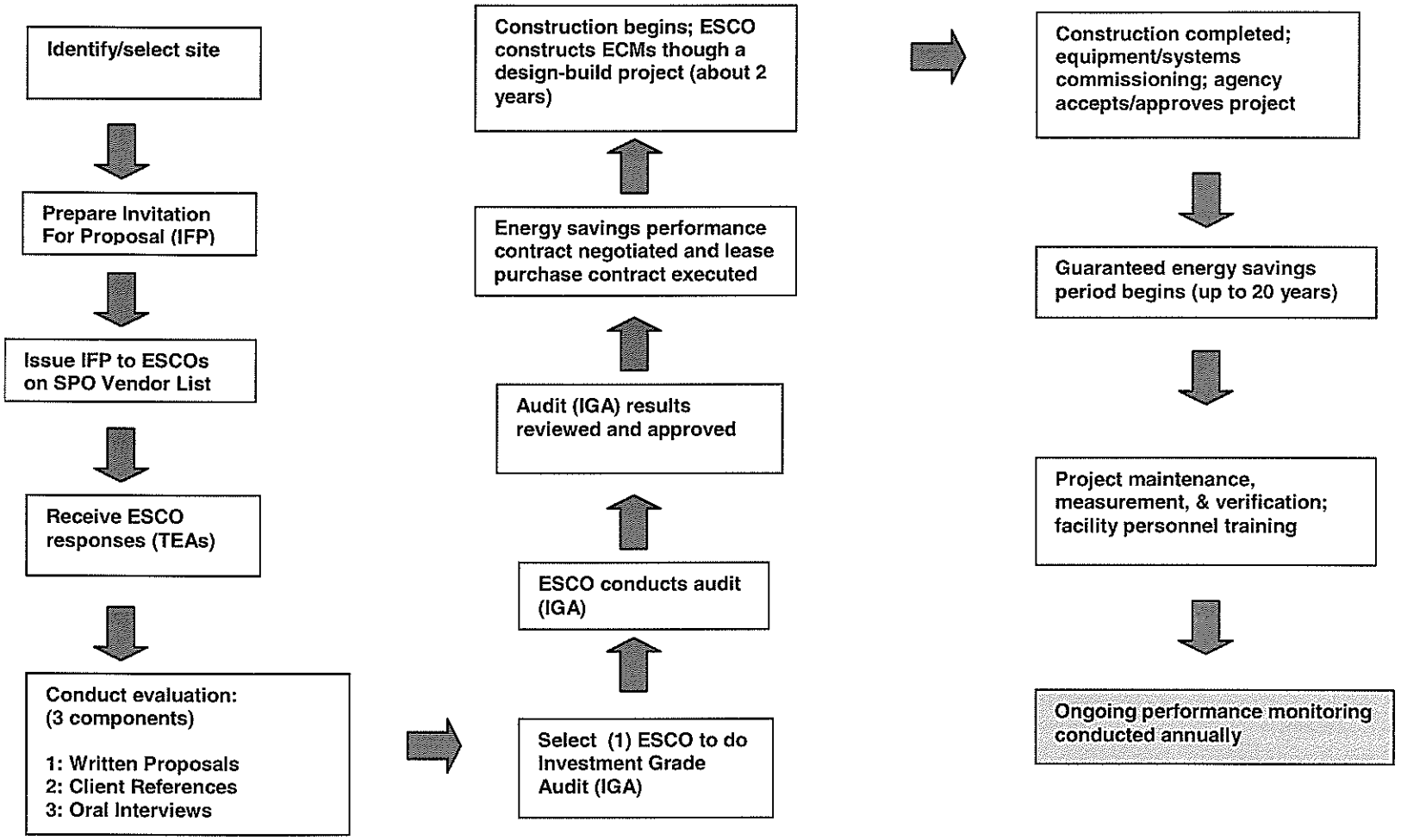
(1) Energy performance contracts;

(2) Municipal lease and purchase financing; and

(3) Utility energy-efficiency service contracts.

Energy-savings contracts shall provide significant opportunities for making state facilities more energy efficient at no net cost to taxpayers.

SAMPLE STEPS FOR IFP AND IMPLEMENTATION OF ESPC PROCESS



Project Delivery Process and Timeline

1. **SPO ESPC VENDOR LIST –** 6 ESCOs pre-qualified (11/08)
2. **SHORT LIST –** 4 ESCOs (12/08)
3. **INVITATION FOR PROPOSAL –** IFP issued (1/20/09)
4. **TECHNICAL ENERGY ASSESSMENT PROPOSALS -** received (2/18/09)
5. **ESCO SELECTION –** NORESCO selected (3/3/09)
6. **INVESTMENT GRADE AUDIT** – completed (6/5/09), revised (7/27/09)
7. **PROJECT FUNDING APPROVED –** (7/09)
   1. Use existing and new CIP bonds ($22 million), and
   2. Use lease purchase financing ($12.4 million)
8. **GUARANTEED ENERGY SAVING AGREEMENT AND LEASE PURCHASE AGREEMENT** – executed (8/09)
9. **NOTICE TO PROCEED** – given to NORESCO (9/4/09)
10. **EST. CONSTRUCTION COMPLETION** – (9/11)

DAGS ESPC Capital District Project

- State Capital District including **10 buildings** covering approximately **1.3 million square feet**.

- Buildings include: Kalanimoku, Keelikolani, Kekauluohi, Kekuanaoa, Keoni Ana, Kinau Hale, Liliuokalani, No. 1 Capitol District (Hemmeter), State Capitol, Leiopapa-A-Kamehameha.

- Project size: **$33.9 million** constructed in FY2010 and FY2011.

- Creates an estimated $1.5 million in State Tax Revenue in FY2010 and FY2011 with an additional $1.7 million over the next 20 years

Project Objectives

- **Increase energy efficiency** and building performance with the goal of reducing energy usage and demand
- **Reducing life cycle costs** of operating the buildings including maintenance cost,improved equipment life, water usage, solid waste generation, etc.
- **Improve environmental quality** for building occupants and reduce emissions from burning oil
- Address the **deferred repair and maintenance backlog** of projects
- **Leverage available annual cash flow** from avoided utility and maintenance costs

DAGS ESPC Phase I
10 Buildings 1 Million Square Feet

- Kalanimoku
- Keʻelikôlani
- Kekāuluohi
- Kekûanaôʻa
- Keoni Ana
- Kînaʻu Hale
- Liliʻuokalani
- No. 1 Capitol District
- State Capitol
- Leiopapa A Kamehameha

DAGS ESPC Phase I
22 ECMs in 10 System Areas

- Lighting Systems –
- Energy Management Systems
- HVAC Air Side Systems
- HVAC Water Side Systems
- Renewable Energy
- Water Conservation
- Building Envelope
- Information Technology
- Communications, Awareness, & Sustainability
- Annual Operation and Maintenance Services

Energy Conservation Measures (ECMs)

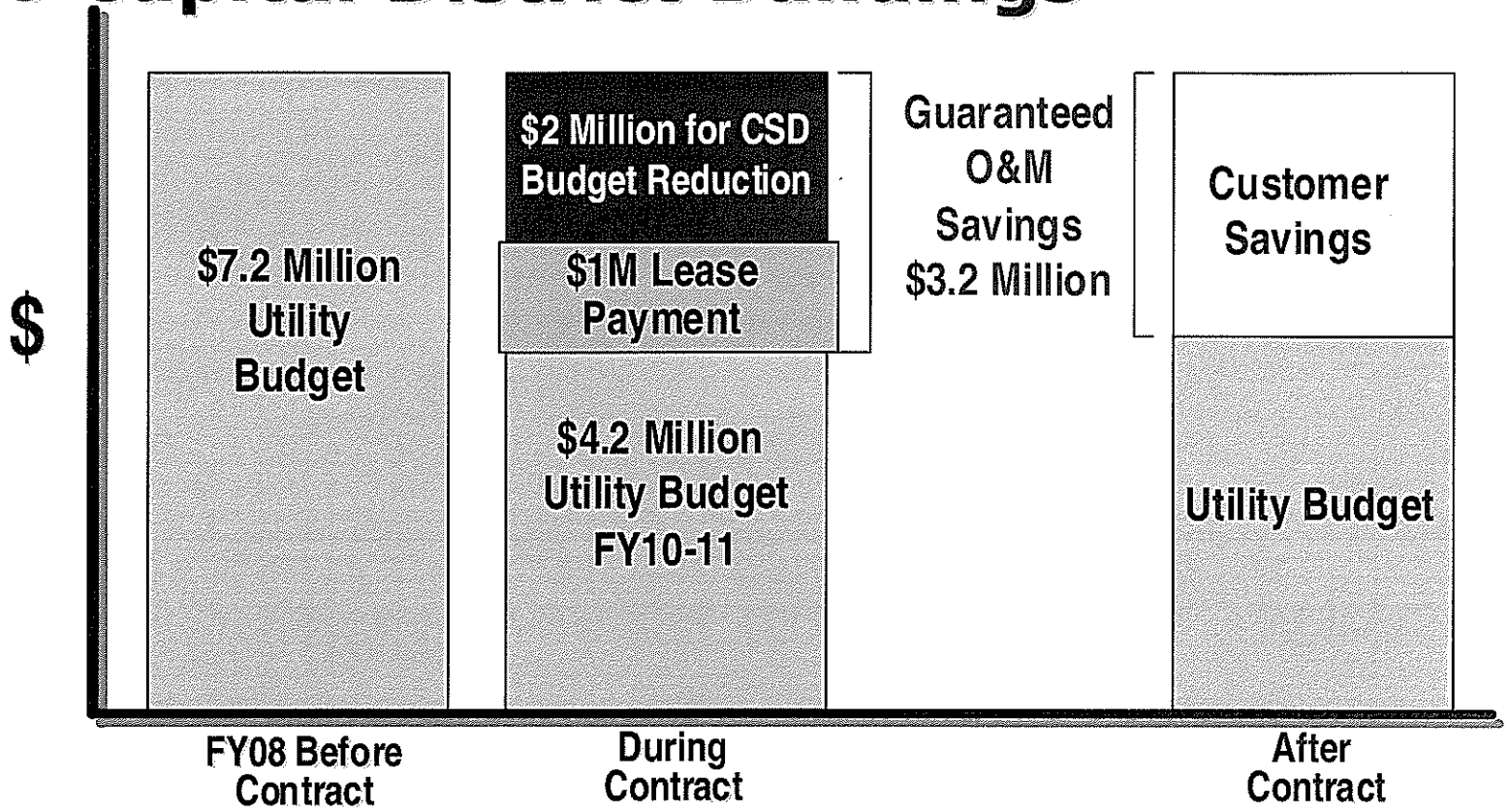
- Lighting Systems
- Energy Management Sys.
- HVAC (Air and Water)
- Renewable Energy
- Water Conservation
- Building Envelope
- Information Technology
- Communication, Awareness & Sustainability
- Annual O&M Services

Customer Driven Energy Solutions

State of Hawaii Dept. of Accounting & General Services

Energy Efficiency (EE) & Capital Improvement Project (CIP) Opportunities	Kalanimoku Building	Princess Ruth Keelikolani Building	Kekauluohi (Archives) Building	Kekuanaoa Building	Keoni Ana Building	Kinau Hale Building	Queen Liliuokalani Building	No. 1 Capitol District (Hemmeter Building)	State Capitol Building	Leiopapa-A-Kamehameha Building	Hale Auhau Building
Lighting Systems											
High Efficiency Super T8 Lamps & Ballasts	√	√	√	√	√		√	√	√	√	
Occupancy Sensors	√	√		√	√		√	√	√	√	
Occupancy Based Stairwell Light Fixtures	√	√	√	√	√				√	√	
Energy Management System											
Energy Management System	√	√	√	√	√	√	√	√	√	√	√
Electrical Metering via EMS (Building Level only)	√	√	√	√	√	√	√	√	√	√	
HVAC (Air Side)											
AHU Infrastructure Modernization	√	√									
Convert Constant Volume HVAC Systems to VAV					√		√				
Demand Control Ventilation	√								√		
Air Conditioning Systems (Water Side)											
Energy Efficient Chillers								√	√		
Variable Speed Chilled Water Pumps	√	√									
Variable Speed Cooling Tower Fans	√						√	√	√	√	
Condenser Water Treatment System	√	√		√			√	√	√	√	
Cooling Tower Make-up Water Deduct Meters	√	√		√			√	√	√	√	
Renewable Energy											
Photovoltaic System (not included in project scope)											
Water Conservation											
Ultra-Low-Flush Toilets/ High-Efficiency Toilets	√	√	√	√	√	√	√	√	√	√	
Faucet Flow Restrictors	√	√						√			
Low Flow Showerheads						√			√	√	
Weather Based Irrigation Controls & Sewer Deduct Meters	√	√	√	√	√	√	√	√	√	√	
Retrofit Existing Water Meters to Digital Output	√	√	√	√	√	√	√	√	√	√	
Building Envelope											
Building-Entry / Open-Hallway Doors									√	√	
Information Technology											
Desktop Power Management	√	√	√	√	√	√	√	√	√	√	
Data Center Optimization / Server Virtualization - Assessment	√										
Energy Conservation Through Behavior Change											
Communication, Awareness, & Sustainability	√	√	√	√	√	√	√	√	√	√	
Annual/O&M Service											
Energy Star Performance Ratings	√	√	√	√	√	√	√	√	√	√	
HVAC Service EMS Service Energy Manager Measurement & Verification	√	√	√	√	√	√	√	√	√	√	
Facility Asset Management Tool	√	√	√	√	√	√	√	√	√	√	

DAGS Utility Budget for the 10 Capital District Buildings



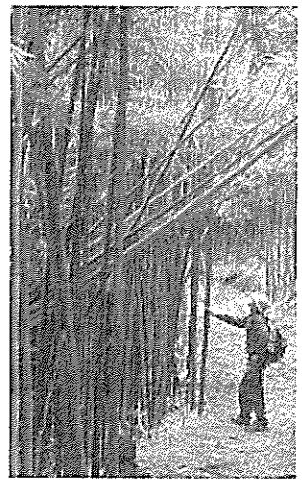
ESPC program provides:

- **Cuts utility usage by up to 30% using a combination of $22million (CIP/ GO Bond) and $12 million (Lease Purchase)**
- **Addresses $2 million deficit in Central Services Division Utility Budget for FY2010-2011 by using construction period utility consumption and maintenance savings plus HECO rebates**

Estimated Annual Savings

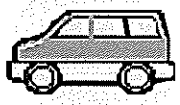
- Electricity – 6,322,964 kWh
- Water – 19,426,000 gallons
- Sewer – 53,225,000 gallons

Estimated Environmental Benefits



Emissions Reductions

Emission Type	Emissions Units	Option A
Carbon Dioxide (C02)	Lbs	10,856,528
Nitrous Oxide (N0x)	Lbs	28,959
Sulfuric Oxide (S0x)	Lbs	33,354

Equivalent Number of Acres of Trees Planted		**2,044 Acres**
Equivalent Number of Cars Removed from the Roads		**1,647 Cars**

ESPC Lessons Learned

- Magnitude of the savings opportunities were greater than initially expected and many State facilities could be good candidates for ESPC
- ESPC is a new project delivery paradigm for State agencies and requires educating leadership, finance, engineering, legal and O&M staff to create buy-in
- Requires a strong, committed team involving engineering, O&M, finance and legal staff
- Requires a long term commitment by the agency to administer a contract of up to 20 years
- Supports the Governor's Clean Energy Initiative and the intent of the State Legislature

ESPC Lessons Learned (partial list)

- ESPC provides a comprehensive, whole facility approach to implementing efficiency and conservation improvements to reduce costs (utilities and maintenance)
- Leverages the ESCO's expertise and experience
- Provides another alternative financing approach to fund improvements beyond the State's traditional reliance on general obligation bonds
- ESCO performance guarantee and annual measurement & verification process and extensive maintenance services ensures that the savings will continue for the life of the program

Frequently Asked Question (FAQ):

- What are the differences between a "design-bid-build" project, a "design-build" project, and an ESPC project?
  - "Design-bid-build" projects involve separate contracts for design and construction work
  - "Design-build" projects involve a single contract for design and construction work
  - "Design-bid-build" and "design-build" projects do not leverage (use) any resultant energy savings to secure additional project funding
  - ESPC projects involve a "design-build" contract for design and construction work that leverages resultant energy savings to maximize available project funding for implemented ECMs

Frequently Asked Question (FAQ):

- How does an ESPC project comply with HRS, Chapter 103D (State Procurement Code)?
  - Pursuant to HRS, Chapter 103D, the Request for Proposals (RFP) process can be used for a performance-based project (such as an ESPC project)
  - DAGS-Public Works Division (PWD) and DAGS-State Procurement Office (SPO) staff created a Vendor List of "pre-qualified ESCOs" with Vendor List Instructions that a State or County agency can use for their ESPC projects

Frequently Asked Question (FAQ):

- When should an energy savings performance contracting (ESPC) project be considered?
  - There is limited CIP funding, Federal grants, etc for a backlog of building improvements
  - Implementation of building improvements (aka energy conservation measures or ECMs) will reduce annual operating costs
  - Continually waiting for CIP funds, Federal grant funds, etc is not a feasible alternative (aka LOST OPPORTUNITY COSTS)

Frequently Asked Question (FAQ):

- Why should an ESPC) project be considered (in lieu of typical projects using operating budget funds, CIP funds, Federal grant funds, etc)?
  - Energy conservation measures (ECMs) with guaranteed energy savings can be used to secure 3rd party financing (through an equipment lease-purchase agreement with a private-sector financial institution)
  - Under an ESPC project, CIP funds, Federal grants, etc can be used with annual operating budgets to maximize the amount of 3rd party financing secured for ECMs with guaranteed energy savings
  - Typical project delivery systems do not leverage (use) resultant energy savings to secure any additional project funding

Frequently Asked Questions (FAQ):

- Will an ESPC project eliminate utility budget shortfalls?
  - An ESPC project will result in annual cost savings that would have otherwise been spent on ongoing utility and operational maintenance costs (aka AVOIDED FUTURE COSTS)
  - Actual reduction in annual operating budgets will be fully realized after 3rd party financing for the implementation of ECMs with guaranteed energy savings is re-paid

Frequently Asked Question (FAQ):

- What happens to annual operating budgets if an ESPC project is implemented?
  - Annual reduction of energy-related utility consumptions and operational maintenance costs could involve: electrical power and potable water usage; sewer assessment and solid waste disposal fees; monitoring requirements and maintenance services, etc
  - Annual operating budgets need to remain fully funded for ongoing utility and operational maintenance costs (subject to escalation of utility rates, labor charges, etc outside the control of the ESCO) and re-payment of 3rd party financing that is secured based on the implementation of ECMs with guaranteed energy savings

Frequently Asked Question (FAQ):

- What sources of project funding can be used for an ESPC project?
  - HRS 36-41 and HRS 196, allow the use of 3rd party financing and do not restrict the use of other sources of project funding for ESPC projects (such as CIP funds, Federal grant funds, etc)
  - CIP funds, Federal grant funds, etc do not have to be re-paid under the ESPC project and can be used to maximize the amount of 3rd party financing that can be secured for the ESPC project
  - CIP funds, Federal grants, etc used for this purpose need to be for building improvements that are tied to energy-related savings

Frequently Asked Question (FAQ):

- What is meant by an ESPC project does not require any "up-front costs"?
  - Only the ESCO selected to do an Investment Grade Audit (IGA) report and energy savings cash flow model with guaranteed energy savings agreement for a proposed ESPC project will be paid after submittal of the final IGA report (findings and determinations from the final IGA report should not vary from the TEA report by more than 20%)
  - Payment for the final IGA report will either be "rolled into" the development cost for the ESPC project or paid using other sources of funding (such as available operating budget funds, CIP funds, Federal grant funds, etc) if the final IGA report does not result in an ESPC project by the selected ESCO

Frequently Asked Question (FAQ):

- What must be done for the ESCO guaranteed energy savings under the ESPC project?
  - After final acceptance of all completed ECMs, the ESCO guaranteed energy savings agreement begins (say 20 year term)
  - On an annual basis (in accordance with a pre-approved Monitoring and Verification or M&V plan), ESCO and State or County agency staff will generate a reconciliation report on actual energy savings achieved by the implemented ECMs
  - During the ESCO guarantee period, equipment maintenance service agreements can remain with the State or County agency or can be assigned to the ESCO under the ESPC project

Frequently Asked Question (FAQ):

- What needs to be done to initiate an ESPC project?
  - At least three (3) ESCOs from the DAGS-SPO Vendor List have to be short-listed for specific ESPC project requirements and then asked to participate in a secondary solicitation process (aka Invitation for Proposals)
  - Through the secondary solicitation process, an ESCO is selected to do an Investment Grade Audit (IGA) report with energy savings cash flow model and guaranteed energy savings agreement based on proposed ECMs
  - The ESCO selected to do the IGA report will be paid (the other short-list ESCOs will not be paid for their efforts during the secondary solicitation phase)